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"Why, sirra, didn't you say this moment you were watching a still?"

"I meant, sir," replied the lad with a face that spoke of pure idiocy, "that it was the gauger I was watchin', an' I was to whistle upon my fingers to let the boy at that fire on the hill there above know that he was comin'."

"Who told you to do so?"

"Little George, sir, an' Mickey M'Quade."

"Ay, ay, right enough there, my lad—two of the most notorious schemers unhanged they are both. But now, like a good boy, tell me the truth, an' I'll give you the price of a pair of shoes. Do you know where the still or still-house is? Because if you do, an' won't tell me, here are the soldiers at hand to make a prisoner of you; an' if they do, all the world can't prevent you from being hanged, drawn, and quartered."

"Oh, bad cess may seize the morsel o' me knows that; but if you'll give me the money, sir, I'll tell you who can bring you to it, for he tould me yestherday mornin' that he knew, an' offered to bring me there last night, if I'd steal him a bottle that my mother keeps the holy water in at home, tal he'd put whisky in it."

"Well, my lad, who is this boy?"

"Do you know Harry Neil, or Mankind, sir?"

"I do, my good boy."

"Well, it's a son of his, sir; an' look, sir: do you see the smoke farthest up to the right, sir?"

"To the right? Yes."

"Well, 'tis there, sir, that Darby Neil is watchin'; and he *says* he knows."

"How long have you been watching here?"

"This is only the third day, sir, for *me;* but the rest, them boys above, has been here a good while."

"Have you seen nobody stirring about the hills since you came?"

"Only once, sir, yesterday, I seen two men having an empty sack or two, runnin' across the hill there above."

At this moment the military came up, for he had himself run forward in advance of them, and he repeated the substance of his conversation with our friend the vidette. Upon examining the stolidity of his countenance, in which there certainly was a woful deficiency of meaning, they agreed among themselves that his appearance justified the truth of the story which he told the gauger, and upon being still further interrogated, they were confirmed that none but a stupid lout like himself would entrust to his keeping any secret worth knowing. They now separated themselves into as many detached parties as there were fires burning on the hills about them, the gauger himself resolving to make for that which Darby Neil had in his keeping, for he could not help thinking that the vidette's story was too natural to be false. They were just in the act of separating themselves to pursue their different routes, when the lad said,

"Look, sir! look, sir! bad scran be from me but there's a still any way. Sure I often seen a still: that's jist like the one that Philip Hogan the tinker mended in George Steen's barn."

"Hollo, boys," exclaimed Pentland, "stoop! stoop! they are coming this way, and don't see us: no, hang them, no! they have discovered us now, and are off towards Mossfield. By Jove this will be a bitter trick if they succeed; confound them, they are bent for Ballagh, which is my own property; and may I be hanged if we do not intercept them; but it is I myself who will have to pay the fine."

The pursuit instantly commenced with a speed and vigour equal to the ingenuity of this singular act of retaliation on the gauger. Pentland himself being long-winded from much practice in this way, and being further stimulated by the prospective loss which he dreaded, made as beautiful a run of it as any man of his years could do. It was all in vain, however. He merely got far enough to see the still head and worm heaved across the march ditch into his own property, and to reflect after seeing it that he was certain to have the double consolation of being made a standing joke of for life, and of paying heavily for the jest out of his own pocket. In the mean time, he was bound of course to seize the still, and report the caption; and as he himself farmed the townland in question, the fine was levied to the last shilling, upon the very natural principle that if he had been sufficiently active and vigilant, no man would have attempted to set up a still so convenient to his own residence and property.

This manœuvre of keeping in reserve an old or second set of apparatus, for the purpose of acting the lapwing and misleading the gauger, was afterwards often practised with success; but the first discoverer of it was undoubtedly Mickey M'Quade, although the honour of the discovery is attributed to his friend George Steen. The matter, however, did not actually end here, for in a few days afterwards some malicious wag—in other words, George himself—had correct information sent to Pentland touching the locality of the cavern and the secret of its entrance. On this occasion the latter brought a larger military party than usual along with him, but it was only to make him feel that he stood in a position if possible more ridiculous than the first. He found indeed the marks of recent distillation in the place, but nothing else. Every vessel and implement connected with the process had been removed, with the exception of one bottle of whisky, to which was attached by a bit of twine the following friendly note:—

"MR PENTLAND, SIR—Take this bottle home and drink your own health. You can't do less. It was distilled *under your nose* the first day you came to look for us, and bottled for you while you were speaking to the little boy that made a hare of you. Being distilled then under your nose, let it be drunk in the same place, and don't forget while doing so to drink the health of G. S."

The incident went abroad like wildfire, and was known everywhere. Indeed for a long time it was the standing topic of the parish; and so sharply was it felt by Pentland that he could never keep his temper if asked, "Mr Pentland, when did you see little George Steen?"—a question to which he was never known to give a civil reply.

THE GLOBE OF THE EARTH.

WE were surprised very much some time ago at considering how much of the surface of the globe is covered by the waters of the lakes and oceans, and took the opportunity then of adverting to the importance of water in the general economy of nature. When, however, we pass to the consideration of the magnitude of the earth itself, the relative proportion of water appears to be much less considerable.

Although there are many places in the great Atlantic and Pacific Oceans where the depth of water is very great, yet it has been deduced from principles that are not liable to much error, that the general or average depth does not exceed three miles. It may appear very strange that we can assert any thing positive about the depth of water in those seas, that are to the lines used for sounding quite unfathomable; but it is effected very simply. Every person has seen a wave advancing along the level surface of a canal, and by observing with a watch, it could easily be found to move more quickly at some times than at others. The deeper any part of the canal is, the more rapidly does the wave move along; and partly by experiment, and partly by reasoning, the connection between the depth of the water and velocity of the wave has been discovered. Now, the tide which comes to Dublin every twelve hours is produced by the influence of the sun and moon on the vast body of water in the Southern Pacific Ocean; and the great wave there formed turns round Cape Horn, and passes up the Atlantic Ocean, to arrive at the coasts of Europe and North America. The time occupied by this great wave in passing from one end to the other of the Atlantic can thus be known, and, precisely as in a canal, the depth of water thus calculated.

The circumference of the earth at its widest part is about 25,000, and its diameter 8000 miles. Hence the sheet of water which constitutes the ocean forms but 3-4000ths of its thickness, or nearly the same proportion as if we took an eighteen inch globe, and having spilled water on its surface, allowed all the excess of water to drain off. The remaining wetness would represent pretty nearly the condition of the waters of the ocean on the surface of the earth. By this means we can form, though obscurely, to our minds, an idea of the great magnitude of the earth itself. This magnitude renders also very inconsiderable those inequalities on the surface of the earth which constitute our highest ridges of mountains. A true model of Mont Blanc, the highest of European mountains, if constructed on the eighteen inch globe before referred to, would be unfelt by a finger drawn along its surface, and it would be only some of the highest peaks of the Andes and Himalayah that could be distinctly felt. Where man also employs his most gigantic energies and greatest efforts of skill to penetrate below the surface, forming mines by which the supplies of coal, of iron, of copper, and other minerals, have been obtained from the earliest times, the cavities that he makes can only be compared with the trace given by the point of a pin that had lightly touched the globe, and which would require a favourable incidence of light to see.

The earth is therefore almost perfectly a smooth and solid ball. It is, however, almost certain that it was not always solid. It is, on the contrary, almost certain that at a period far exceeding in remoteness any time of which mere human indications can be found, the globe of the earth was one mass of liquid matter, heated to a degree exceeding our most intense fires, and wherein were melted all together the various elements which have since arranged themselves into their present forms. From having been thus liquid, the earth, which, revolving on its axis, produces by the side it turns to the sun the alternating day and night, has bulged out where the rotation of the surface is most rapid, at the equator, and has become flattened at the extremities of its axis, at the poles, just as a thin hoop which we spin round becomes compressed. The amount of this flattening is however very small. The equatorial diameter of the earth being accurately 7925, and the polar diameter being 7898, the compression is 27 miles.

To account for the existence of this compression, the earth must have been originally liquid, for otherwise the rotation on its axis could not have generated this regular form. If it had been solid when it began to revolve, it should either have retained its original form, or it should have broken in pieces; but certainly unless it had been liquid, it could not have arrived at the exact degree of flattening which its velocity of rotation should have produced in a liquid mass.

The intensely heated and liquid earth, revolving in the cold and empty spaces of the planetary system, gradually must have lost its excess of heat. Cooling most rapidly at the surface, it there solidified, and generated the first rocks. The loss of heat still going on, the solidification proceeded to a greater and greater depth, and should ultimately have reduced the earth to the same temperature as the empty space among the stars. The temperature of space has been calculated to be almost the same as that in the winter at Melville Island, in northernmost America, that is, 56 deg. below zero, or as far below the freezing point of water as the temperature of the hottest water that the hand can bear is above it. The earth is, however, not allowed to cool to that degree. It receives from the sun by radiation a quantity of heat which counteracts its tendency to cool, and hence the mean temperature of the surface of the earth has remained the same from the earliest historical epochs. In fact, at the surface we can find no trace of that original and internal great heat, the temperature of the surface of the earth being regulated altogether by the effect of the sun's rays; but if we dig down to a moderate depth, about 45 feet, the influence of the sun becomes insensible. Within that space also we can detect a very curious and important arrangement of the heat. It is not that the whole surface becomes warmed in summer and cold in winter, but the heat which is received from the sun in one summer travels by conduction beneath the surface, and is succeeded by the heat of the next summer, an intervening and cooler layer corresponding to the winter time, so that at a depth of 20 feet we may detect the heat which had fallen upon the surface four or five years before, this space of 45 feet being formed of numerous layers like the coatings of an onion, one for each year, until becoming less and less distinct, according as the depth increases, they join together in forming the layer of invariable temperature in which all the effect of the sun's heat is lost.

If we dig down still farther, the earth, though having lost the heating power of the sun, becomes sensibly warmer. The greater the depth to which we descend, the higher is the temperature found to be. Thus, where deep sinkings have been made for mines or wells, the air or water at the bottom is found to be much higher in temperature than at the invariable layer which gives the mean temperature of the place. This observation was first made in the case of the deep mines in Cornwall, and, although for some time ascribed to the presence of the workmen and the burning lamps, has since been verified by observations in all parts of Europe, and such agreement found, that the law connecting the temperature with the depth has been at least approximately determined.

It is found, counting from the invariable layer, that the temperature increases about one degree of Fahrenheit's scale for every fifty feet in depth. Thus, a well having been sunk at Rudersdorff to a depth of 630 feet, the water at the bottom was found to be 67 degrees, while the mean temperature was 50 degrees. In a coal mine at Newcastle, which reaches to a depth of 1584 feet, the mean temperature of the surface being 48 degrees, the thermometer was found to stand at 73 degrees in the lowest part of the mine, and hence the elevation of temperature was 25 degrees. Observations elsewhere vary between these limits; but the general result is, that the rise is one degree for about every fifty feet, as above stated.

When we consider the great magnitude of the earth, and observe the rapidity with which the increase of temperature occurs, it will strike every person that we in reality inhabit a mere pellicle or skin, which has formed by cooling upon the surface, whilst all the internal mass of our globe may still be in the same state of igneous fusion and tumultuous action of elements, from which its present mineral constitution on the surface has resulted. For although it has cooled so far that at the surface all traces of its central fires have disappeared, yet at a mile and a half below the surface the temperature is such as should boil water: at a depth of five miles, lead would melt. Thirty miles below the surface, cast iron, and all those rocks which are generally the product of volcanoes in action, as trap and basalt, would fuse; and hence we may consider those terrific phenomena which have so frequently desolated some of the most beautiful districts of the earth, as being minute apertures or cracks in the thin coating of our planet, and giving vent from time to time to some small portions of the internal fires which work beneath.

Additional evidence of the existence of this central heat may be derived from the peculiarity of springs. Those springs which carry off and are supplied with water from the surface, change their temperature with the season, being in winter cold, but in summer warm. Others, deriving their waters from a deeper layer of soil, as from the stratum of constant heat, are always the same, and, possessing the mean temperature of the place, feel warm in winter and cold in summer. Such springs exist in every country, and are very useful in ascertaining the mean temperature, for in place of watching a thermometer for a year, and taking averages, it is only necessary to select with proper caution such a deeply supplied spring, and by observing the temperature of its waters, the mean temperature of the place is found.

A certain quantity of the water which is absorbed by the ground after rain must penetrate to a great depth, must descend, in fact, until at 1½ miles it is boiled and driven up again to find some outlet as a spring. In rising up, however, it is for the most part cooled; but having charged itself with various saline and metallic bodies, under the most favourable circumstances of high temperature and pressure, it issues as a hot mineral spring or spa On getting into the air, it generally abandons a great part of what it had dissolved, and forms in many cases enormous depositions of solid rock.

A company in Paris have formed the idea of using the water thus heated by the powers below, for the purposes of public baths. The neighbourhood of Paris is peculiarly fitted for what are termed Artesian wells, in which the water often rises considerably above the surface of the ground. Under the auspices of this company, a well has been sunk already to the depth of 1600 feet, and water obtained at 77 degrees; but to obtain natural hot water at a temperature of 100 degrees, which would be required for bathing purposes, an additional depth of probably as much more will be required. It is said the projectors are not now sanguine of its pecuniary success.

THE SECRET OF SUCCESS IN LIFE.—In no department of life do men rise to eminence who have not undergone a long and diligent preparation; for whatever be the difference in the mental power of individuals, it is the cultivation of the mind alone that leads to distinction. John Hunter was as remarkable for his industry as for his talents, of which his museum alone forms a most extraordinary proof; and if we look around and contemplate the history of those men whose talents and acquirements we must esteem, we find that their superiority of knowledge has been the result of great labour and diligence. It is an ill-founded notion to say that merit in the long-run is neglected. It is sometimes joined to circumstances that may have a little influence in counteracting it, as an unfortunate manner and temper; but generally it meets with its due reward. The world are not fools—every person of merit has the best chance of success; and who would be ambitious of public approbation, if it had not the power of discriminating?—*Physic and Physicians.*

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